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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,054	11/30/2001	Koji Hashizume	1500.66022	5488

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Patrick G. Burns, Esq.
GREER, BURNS & CRAIN, LTD.
Suite 2500
300 South Wacker Dr.
Chicago, IL 60606

EXAMINER	
KOCH, GEORGE R	

ART UNIT	PAPER NUMBER
1734	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/998,054	HASHIZUME ET AL.	
	Examiner	Art Unit	
	George R. Koch III	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-59* is/are pending in the application.

4a) Of the above claim(s) *5-42 and 45-57* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 43, 44, 58, 59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-4, 43, 44, 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell and further in view of JP 2000-258746 and JP05-326,451.

Russell discloses a treatment chamber (item 22, see Figure 1), first and second holding units (items 24 and 26), wherein the first and second units respectively hold first and second substrates, and at least one holding unit (in this case, the upper or first unit, see column 3, lines 1-10) generates pressure to attract the associated pressure to attract the associate substrate through vacuum, a vacuum pump (item 72) which depressurizes the treatment chamber, and a control device (item 90), which controls the treatment chamber, the first and second holding units, and the vacuum pump, and wherein the control device is capable of instructing at least one holding unit to attract the associated substrate through vacuum, depressurize the treatment chamber, and is further capable of substantially equalizing the pressure applied by at least one holding unit with the pressure in the treatment chamber (see column 3, lines 53-67).

Russell does not disclose two holding units generating pressure and a control device instructing both holding units. Russell also does not suggest that each holding unit includes another holding device for holding the substrate.

The machine translation of JP 2000-258746 discloses an apparatus for manufacturing a bonded substrate, comprising a treatment chamber and first and second holding units, wherein the two holding units are capable of and are disclosed as holding first and second substrates, and further discloses that both holding unit utilizes vacuum adsorption to generate pressure to attracted associated substrates through vacuum (see Drawing 1 for the treatment chamber and the first and second holding units. See paragraphs 0028-0030 for discussion of the vacuum adsorption of the first and second holding units). The machine translation also discloses a control device which controls the first and second holding units, in order to instruct each holding unit to attract the associated substrate through vacuum (see paragraph 0054, which discloses hydraulics and pneumatics can control the vacuum). One in the art would appreciate that vacuum and pressure control of both holding units would ensure proper holding of the substrates, and would ensure that neither substrate shifts during the lamination stage, ensuring proper alignment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such dual holding units generating pressure and dual control of both units in order to achieve proper alignment.

JP 05-326451 suggests that a holding unit includes another holding device for holding the substrate, and that the another holding device is an electrostatic chuck. The machine translation of JP 05-326451 discloses that chucks that solely use vacuum can exert a bad influence with regard to particle accumulation (see paragraph 0003), while chucks that solely use electrostatic effects can deteriorate quickly (paragraph 0007) and

that an electrostatic chuck in combination with a vacuum chuck allows for improvement in the defects of both. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized another holding device within each holding unit, including the upper holding unit, in order to minimize the negative effects of either holding system and improve manufacturing capabilities.

As to claim 43, Russell, JP 2000-258746 and JP 05-326451, in addition to disclosing and making obvious the first and second holding units each using a vacuum chuck and another chuck unit, the treatment chamber, first vacuum pump and control device as discussed in claim 1 above, also discloses additional details. Russell, the primary reference, discloses a first control valve (items 84 and 76), and a first pneumatic system for vacuum chucking, structures capable of performing the function of pressure equilization (such as the controller). Furthermore, the presence of vacuum chucking structures make obvious an air/depressurization line, control valve and pumping structure are needed. JP 2000-258746, as part of the dual vacuum holding units incorporated above, makes obvious or inherent the use of two of each structure.

As to claim 2 and 44, the references as applied to claims 1 and 43 above do not suggest that the control device is capable of controlling said another holding device, nor do the references suggest that the another holding device is an electrostatic chuck.

However, while Russell does not disclose control of an electrostatic chuck, it does disclose control of chucks and vacuum chambers. It would have been apparent to one incorporating said another holding device of JP 05-326451 would need to have the

control device controlling said another holding device, in order to ensure proper operation and synchronization of the chucking and bonding steps with the overall process as shown in Russell. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have controlled said another holding device in order to ensure proper operation and synchronization of the chucking and bonding steps.

As to claim 3, JP 05-326451 as applied above recites using an electrostatic chuck as the second holding device.

As to claim 4, the apparatus as suggested in claim 2 and 3 above would be capable of substantially equalizing the pressure as claimed.

Claim 58 and 59 are rejected on similar grounds as claim 1 and 43 above, respectively. The control structures of Russell as rendered obvious in claims 1 and 43 would be capable of the control steps in claims 58 and 59.

Response to Arguments

3. Applicant's amendments filed 4/22/2004, have overcome the rejections of claims 1-4 under 35 U.S.C. 112 and claim 1 under 35 U.S.C. 102(e).

4. Applicant's arguments with respect to amended claims 1-4, 43,44, 58, 59 have been considered but are moot in view of the new ground(s) of rejection. The new grounds of rejection makes clear that Russell, which discloses chamber controls and vacuum controls, and JP 2000-258746, which disclose chambers with only upper and

lower vacuum holding mechanisms, in combination with the JP 05-326451 reference, which discloses the benefits of holding mechanisms utilizing both vacuum and electrostatic holding mechanisms, renders obvious under 35 U.S.C. 103(a) the element of an upper holding device with both vacuum and electrostatic holding mechanisms.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the

applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GRK
July 9th, 2004

George R. Koch III
Patent Examiner
Art Unit 1734

CHRISTOPHER A. FIORILLA
~~PRIMARY EXAMINER~~
SPE, AU 1734